

POT LID ASSEMBLY AND PRESSURE COOKER

FIELD

[0001] The present disclosure relates to the technical field of pressure cookers, and more particularly, to a pot lid assembly and a pressure cooker.

5

BACKGROUND

[0002] An electric pressure cooker is a common cooking utensil. In the related art, a pot lid of the electric pressure cooker is provided with a rotation handle. By operating the rotation handle, sealing and unsealing of the pot lid can be realized, and locking and unlocking of the pot lid can be realized. In practical applications, a user needs to operate the rotation handle to
10 a larger angle, which requires a large operation space and is not conducive to user operation.

SUMMARY

[0003] The present disclosure provides a pot lid assembly and a pressure cooker to solve at least one technical problem existing above.

[0004] A pot lid assembly of the present disclosure includes a lid body, a bottom lid, a
15 transmission assembly, and a crank handle member. The bottom lid is rotatably connected to the lid body. The bottom lid has a rotation center and is provided with a connection member. The transmission assembly is in a transmission connection with the crank handle member and the connection member. The crank handle member is rotatably connected to the lid body. The pot lid assembly has a first locking state and a first unlocking state and is configured to be
20 switchable between the first locking state and the first unlocking state by driving the bottom lid to rotate relative to the lid body through the transmission assembly during a rotation of the crank handle relative to the lid body. A rotation angle of the crank handle member is in a positive correlation with an arc length through which the connection member passes during

the rotation of the bottom lid, and a distance between a center of the connection member and the rotation center of the bottom lid is smaller than or equal to two thirds of a radius of the bottom lid.

[0005] For the pot lid assembly, the distance between the center of the connection member and the rotation center of the bottom lid is smaller than or equal to two thirds of the radius of the bottom lid, which can correspondingly reduce a required rotation angle of the crank handle member during state switching of the pot lid assembly. In this way, the crank handle member can rotate a small angle to achieve operation on the pot lid assembly (e.g., opening the lid). Therefore, an operation space is reduced, and facilitation of user operation is beneficial.

[0006] In an optional technical solution of the present disclosure, the transmission assembly includes: a first transmission member including a first movable portion in a transmission connection with the crank handle member and a first linkage portion connected to the first movable portion; and a sliding block connected to each of the first linkage portion and the connection member. In this way, a reduction in a space required for transmission is beneficial.

[0007] In an optional technical solution of the present disclosure, the first linkage portion has a first waist hole. The sliding block has a guide post disposed in and penetrating the first waist hole; the sliding block has a second waist hole. The connection member is disposed in and penetrates the second waist hole. The pot lid assembly is configured to, by driving the guide post to move in the first waist hole through the first transmission member during the rotation of the crank handle member relative to the lid body, enable the sliding block to drive, through a hole wall of the second waist hole, the connection member and the bottom lid to rotate around the rotation center of the bottom lid relative to the lid body. In this way, structure limit can be avoided.

[0008] In an optional technical solution of the present disclosure, the first linkage portion has a first limiting hole. The lid body has a limiting post disposed in and penetrating the first limiting hole. When the sliding block is located at a first position, the limiting post abuts against a side wall of a side of the first limiting hole, and the pot lid assembly is in the first locking state. When the sliding block is located at a second position, the limiting post abuts

against a side wall of another side of the first limiting hole, and the pot lid assembly is in the first unlocking state. In this way, the occurrence of structural breakage due to stress concentration can be avoided.

[0009] In an optional technical solution of the present disclosure, the transmission assembly further includes a second transmission member. The second transmission member includes a second movable portion connected to the crank handle member and a second linkage portion connected to the second movable portion; the pot lid assembly includes a lid opening member movably connected to the lid body; and the pot lid assembly has a second locking state and a second unlocking state. The pot lid assembly is configured to be switchable between the second locking state and the second unlocking state by driving the second movable portion to drive the second linkage portion to move during the rotation of the crank handle member relative to the lid body to enable the second linkage portion to drive the lid opening member to move and the second linkage portion to be disengaged from the lid opening member. In this way, functions of locking and unlocking the pot lid assembly can be further realized.

[0010] In an optional technical solution of the present disclosure, when the pot lid assembly is in the first locking state or the second locking state: a rotation angle of switching the pot lid assembly from the first locking state to the first unlocking state during the rotation of the crank handle member relative to the lid body is a first angle; and a rotation angle of switching the pot lid assembly from the second locking state to the second unlocking state during the rotation of the crank handle member relative to the lid body is a second angle. The first angle is smaller than or equal to the second angle. In this way, the functions of locking and unlocking the pot lid assembly to different degrees can be achieved.

[0011] In an optional technical solution of the present disclosure, the first movable portion has a second limiting hole. The second movable portion has a transmission post disposed in and penetrating the second limiting hole, and the second transmission member is connected to the crank handle member through the transmission post. The transmission assembly is configured to, by driving a rotation of the second transmission member by means of the crank handle member and allowing the transmission post to move in the second limiting hole and abut against a side wall of the second limiting hole during the rotation of the second

transmission member, enable the first movable portion to be driven to rotate. In this way, synchronous driving of the first transmission member and the second transmission member can be realized.

5 **[0012]** In an optional technical solution of the present disclosure, the transmission assembly further includes an elastic member connected to the second movable portion. The elastic member is configured to apply an elastic force to the second movable portion, enabling the second linkage portion to be driven by the second movable portion to move away from the lid opening member. In this way, when the crank handle member is not operated, the pot lid assembly can be enabled to still keep the second locking state.

10 **[0013]** A pressure cooker of the present disclosure includes a pot body and the pot lid assembly according to any one of the above technical solutions. The pot lid assembly is rotatably connected to the pot body.

15 **[0014]** For the pressure cooker, the distance between the center of the connection member and the rotation center of the bottom lid is smaller than or equal to two thirds of the radius of the bottom lid, which can correspondingly reduce the required rotation angle of the crank handle member during the state switching of the pot lid assembly. In this way, the crank handle member can rotate a small angle to achieve the operation on the pot lid assembly (e.g., opening the lid). Therefore, the operation space is reduced, and the facilitation of user operation is beneficial.

20 **[0015]** In an optional technical solution of the present disclosure, the pressure cooker includes an inner pot disposed in the pot body. In a first locking state of the pot lid assembly, the bottom lid is in a locking connection with the inner pot. In a first unlocking state of the pot lid assembly, the bottom lid and the inner pot are unlocked. In this way, the functions of locking and unlocking the pot lid assembly on the pressure cooker can be achieved.

25 **[0016]** Additional aspects and advantages of the present disclosure will be provided at least in part in the following description, or will become apparent at least in part from the following description, or can be learned from practicing of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The above and/or additional implementations of the present disclosure will become apparent and readily understood from the following description of implementations in conjunction with the accompanying drawings, in which:

5 [0018] FIG. 1 is a schematic structural view of a pressure cooker according to an implementation of the present disclosure.

[0019] FIG. 2 is an exploded view of a pot lid assembly according to an implementation of the present disclosure.

10 [0020] FIG. 3 is a partially schematic structural view of a pot lid assembly according to an implementation of the present disclosure.

[0021] FIG. 4 is a schematic structural view of a bottom lid according to an implementation of the present disclosure.

[0022] FIG. 5 is an enlarged view of part I of FIG. 3.

15 [0023] FIG. 6 is another schematic structural view of a pot lid assembly according to an implementation of the present disclosure.

[0024] FIG. 7 is a schematic view of a rotation angle of a crank handle member when opening a pot lid assembly according to an implementation of the present disclosure.

[0025] FIG. 8 is a schematic view of a rotation angle of a crank handle member when opening a pot lid assembly in the related art.

20 [0026] Description of reference signs of main components:

[0027] pot lid assembly 100, pressure cooker 200, pot body 201;

[0028] lid body 10, limiting post 101, outer lid 11, inner lid 12, bottom lid 13, connection member 131, connection portion 132;

25 [0029] transmission assembly 20, first transmission member 21, first movable portion 211, first linkage portion 212, first limiting hole 213, second limiting hole 214, sliding block 22, guide post 221, first waist hole 24, second waist hole 25, second transmission member 26, second movable portion 261, second linkage portion 262, transmission post 263, elastic member 27;

[0030] crank handle member 30, lid opening member 41, bubble breaker 42.

DETAILED DESCRIPTION

[0031] The implementations of the present disclosure will be described in detail below with reference to examples thereof as illustrated in the accompanying drawings, throughout which same or similar elements, or elements having same or similar functions, are denoted by
5 same or similar reference numerals. The implementations described below with reference to the drawings are illustrative only, and are intended to explain, rather than limiting, the present disclosure.

[0032] Various implementations or examples for implementing different structures of the present disclosure are provided below. In order to simplify the description of the present
10 disclosure, components and configurations of specific examples are described below. These specific examples are merely for the purpose of illustration, rather than limiting the present disclosure. Further, the same reference numerals and/or reference letters may appear in different examples of the present disclosure for the purpose of simplicity and clarity, instead of indicating a relationship between different embodiments and/or the discussed
15 configurations. In addition, the present disclosure provides examples of various specific processes and materials. However, applications of other processes and/or the use of other materials are conceivable for those of ordinary skill in the art.

[0033] In addition, terms such as “first” and “second” are used herein for purposes of description and are not intended to indicate or imply relative importance or significance or to
20 imply the number of indicated technical features. Thus, a feature associated as “first” and “second” may comprise one or more of these features. In the description of the present disclosure, “a plurality of” means “two or more than two”, unless otherwise specified.

[0034] In the description of the present disclosure, it needs to be understood that technical terms such as “center”, “longitudinal”, “lateral”, “length”, “width”, “thickness”, “over”,
25 “below”, “front”, “back”, “left”, “right”, “vertical”, “horizontal”, “top”, “bottom”, “in”, “out”, “clockwise”, and “anti-clockwise” refer to the directions and location relations which are the directions and location relations shown in the drawings, and for describing the present disclosure and for describing in simple, and which are not intended to indicate or imply that the device or the elements are disposed to locate at the specific directions or are structured

and performed in the specific directions, which could not to be understood to the limitation of the present disclosure.

[0035] In the present disclosure, unless expressly stipulated and defined otherwise, the first feature “on” or “under” the second feature may include that the first feature is in direct
5 contact with the second feature, or further include that the first and second features are in indirect contact through other features between the first and second features. Moreover, the first feature “above” the second feature may mean that the first feature is directly above or obliquely above the second feature, or simply mean that the level of the first feature is higher than that of the second feature. The first feature “below” the second feature may mean that the
10 first feature is directly below or obliquely below the second feature, or simply mean that the level of the first feature is smaller than that of the second feature.

[0036] In the present disclosure, it should be noted that, unless otherwise clearly specified and limited, terms such as “install”, “connect”, “couple”, and the like should be understood in a broad sense. For example, it may be a fixed connection or a detachable connection or
15 connection as one piece; a mechanical connection or an electrical connection; a direct connection or an indirect connection through an intermediate; internal communication of two components or the interaction relationship between two components. For those of ordinary skill in the art, the specific meaning of the above terms in the present disclosure should be understood according to specific circumstances.

[0037] Referring to FIG. 1 to FIG. 4, a pot lid assembly 100 of the present disclosure may include a lid body 10, a bottom lid 13, a transmission assembly 20, and a crank handle member 30.

[0038] The bottom lid 13 may be rotatably connected to the lid body 10 and may have a rotation center. The bottom lid 13 may be provided with a connection member 131.

[0039] The transmission assembly 20 may be in a transmission connection with the crank handle member 30 and the connection member 131.

[0040] The crank handle member 30 may be rotatably connected to the lid body 10. The pot lid assembly 100 may have a first locking state and a first unlocking state. The pot lid assembly 100 may be configured to be switchable between the first locking state and the first
30 unlocking state by driving the bottom lid 13 to rotate relative to the lid body 10 through the

transmission assembly 20 during a rotation of the crank handle member 30 relative to the lid body 10.

[0041] A rotation angle of the crank handle member 30 is in a positive correlation with an arc length through which the connection member 131 passes during the rotation of the bottom lid 13. A distance between a center of the connection member 131 and the rotation center of the bottom lid 13 is smaller than or equal to two thirds of a radius of the bottom lid 13.

[0042] For the pot lid assembly 100, the distance between the center of the connection member 131 and the rotation center of the bottom lid 13 is smaller than or equal to two thirds of the radius of the bottom lid 13, which can correspondingly reduce a required rotation angle of the crank handle member 30 during state switching of the pot lid assembly 100. In this way, the crank handle member 30 can rotate a small angle to achieve operation on the pot lid assembly 100 (e.g., opening the lid). Therefore, an operation space is reduced, and facilitation of user operation is beneficial.

[0043] In an exemplary embodiment of the present disclosure, the lid body 10 may include an outer lid 11 and an inner lid 12. In FIG. 2, the outer lid 11, the inner lid 12, and the bottom lid 13 may be sequentially arranged in an A1 direction and an A2 direction. For the outer lid 11, the inner lid 12 may be assembled at a side of the outer lid 11 facing towards the A2 direction. For the inner lid 12, the bottom lid 13 may be assembled at a side of the inner lid 12 facing towards the A2 direction. The A1 direction may correspond to a top direction of the pot lid assembly 100. The A2 direction may correspond to a bottom direction of the pot lid assembly 100.

[0044] In FIG. 2, the crank handle member 30 is rotatably disposed at a side surface of the outer lid 11 facing towards the A1 direction, and the transmission assembly 20 may be disposed between the outer lid 11 and the inner lid 12. A structure of the crank handle member 30 may partially be disposed in and penetrate the outer lid 11, and can be rotatably connected to a corresponding structure of the transmission assembly 20 located at another side of the outer lid 11.

[0045] When the crank handle member 30 is operated by a user to rotate relative to the lid body 10, a corresponding structure of the transmission assembly 20 can be driven to transmit, and then the bottom lid 13 can be driven to rotate through the transmission assembly 20. The

rotation of the bottom lid 13 can realize state switching of the pot lid assembly 100 between the first locking state and the first unlocking state.

[0046] In FIG. 2 and FIG. 4, the bottom lid 13 is substantially of a disc-shaped structure. The rotation center of the bottom lid 13 may be represented as O. The bottom lid 13 may have a central axis. The rotation center of the bottom lid 13 may be located at the central axis of the bottom lid 13. The central axis of the bottom lid 13 may be represented as L. In FIG. 4, the radius of the bottom lid 13 may be represented as R.

[0047] In contrast, a center of the connection member 131 may be located at a central axis of the connection member 131. In this way, the distance between the center of the connection member 131 and the rotation center of the bottom lid 13 may not be easily affected by a shape of the entire connection member 131. The distance between the center of the connection member 131 and the rotation center of the bottom lid 13 may be a distance between the center of the connection member 131 and the central axis of the bottom lid 13. The connection member 131 may be eccentrically disposed at the bottom lid 13. In FIG. 4, the distance between the center of the connection member 131 and the rotation center of the bottom lid 13 may be represented as D.

[0048] For the transmission assembly 20, the transmission assembly 20 is driven by rotation of the crank handle member 30, enabling a portion of the transmission assembly 20 connected to the connection member 131 can be correspondingly driven. Further, the transmission assembly 20 can be allowed to drive the connection member 131 to move. The rotation of the crank handle member 30 is described relative to the lid body 10.

[0049] The connection member 131 may be fixedly connected to the bottom lid 13, or the connection member 131 and the bottom lid 13 may be integrally formed. The bottom lid 13 may rotate along the central axis L. When the connection member 131 is stressed to move, the bottom lid 13 may be driven by the connection member 131 to rotate along the central axis L. The rotation of the bottom lid 13 is described relative to the lid body 10.

[0050] The rotation of the bottom lid 13 may enable the pot lid assembly 100 to switch between the first locking state and the first unlocking state. In some cases, referring to FIG. 1, the pot lid assembly 100 may be applied to the pressure cooker 200. When the pot lid assembly 100 is in the first locking state, the bottom lid 13 and a corresponding structure of

the pressure cooker 200 may be connected to each other for locking. When the pot lid assembly 100 is in the first unlocking state, the bottom lid 13 may be disengaged from the corresponding structure of the pressure cooker 200 for unlocking.

5 [0051] When the bottom lid 13 rotates to a predetermined angle, a posture of the bottom lid 13 itself can be changed accordingly, to be able to rotate to a posture of the pot lid assembly 100 in the first unlocking state. In this case, corresponding structures of the bottom lid 13 and the pressure cooker 200 lose a mutual connection effect to form unlocking.

10 [0052] Since a rotation angle of the bottom lid 13 may correspond to the rotation angle of the crank handle member 30, i.e., the crank handle member 30 rotates to a corresponding angle, which can achieve an effect of switching of the pot lid assembly 100 between the first locking state and the first unlocking state.

15 [0053] It can be understood that the transmission assembly 20 may affect a transmission ratio between the crank handle member 30 and the bottom lid 13. In some cases, the arc length through which the connection member 131 passes during the rotation of the bottom lid 13 may correspond to the rotation angle of the crank handle member 30. When the rotation angle of the crank handle member 30 is predetermined, the arc length through which the connection member 131 passes is also predetermined. For the connection member 131, when a distance between the connection member 131 and the rotation center O is small and an arc length of rotation of the connection member 131 is predetermined, a radian corresponding to the arc length can be increased, i.e., the bottom lid 13 will rotate more angles.

20 [0054] Based on the above, by limiting the distance between the center of the connection member 131 and the rotation center O, when the rotation angle of the crank handle member 30 is predetermined, the bottom lid 13 can be made rotated more angles. In this way, when the pot lid assembly 100 is switched from the first locking state to the first unlocking state, a required rotation angle of the crank handle member 30 can be correspondingly reduced. For the user, the state switching of the pot lid assembly 100 can be achieved only by operating the crank handle member 30 to rotate by a small angle, and a small rotation angle of the crank handle member 30 can save the operation space can be saved. Finally, the facilitation of user operation can be beneficial. The rotation angle of the crank handle member 30 may be an angle at which the crank handle member 30 rotates from an initial posture to a corresponding

30

posture.

[0055] Referring to FIG. 2 and FIG. 3, the transmission assembly 20 may include a first transmission member 21 and a sliding block 22. The first transmission member 21 may include a first movable portion 211 and a first linkage portion 212. The first movable portion 211 may be in a transmission connection with the crank handle member 30. The first linkage portion 212 may be connected to the first movable portion 211. The sliding block 22 may be connected to the first movable portion 211 and the connection member 131.

[0056] In this way, a reduction in a space required for transmission is beneficial.

[0057] In an exemplary embodiment of the present disclosure, in FIG. 2 and FIG. 3, a rotation shaft of the crank handle member 30 and a rotation shaft of the first transmission member 21 may overlap or be parallel to each other. In FIG. 3, an axis direction of the rotation axis of the first transmission member 21 may be represented as the B1 direction.

[0058] In FIG. 3, the first linkage portion 212 may be fixedly disposed at an outer side surface of the first transmission member 21, and may extend from the outer side of the first transmission member 21 in a direction away from the first movable portion 211. The first linkage portion 212 may be connected to the sliding block 22 through an end of the first linkage portion 212 away from the first transmission member 21.

[0059] In response to the rotation of the first transmission member 21, the first linkage portion 212 may be driven to rotate, and then the sliding block 22 may be driven to move. A movement direction of the sliding block 22 may be a linear direction. In this way, rotation of the first linkage portion 212 may be converted into translation of the sliding block 22. In FIG. 3, a movement direction of the sliding block 22 may be represented as a B2 direction and a B3 direction.

[0060] The sliding block 22 may be connected to the connection member 131 through the end of the sliding block 22 away from the first linkage portion 212. When the sliding block 22 moves in the B2 direction, the connection member 131 may have a trend of moving in the B2 direction. When the sliding block 22 moves in the B3 direction, the connection member 131 may have a trend of moving in the B3 direction. Since the connection member 131 can only rotate around the central axis L, the connection member 131 can move substantially in the B2 direction or the B3 direction within a predetermined range, and a specific movement manner

of the connection member 131 is to rotate around the central axis L. In this way, the translation of the sliding block 22 can be converted into the rotation of the connection member 131.

5 [0061] Based on the above, the transmission assembly 20 can convert the rotation of the first linkage portion 212 into the translation of the sliding block 22, and the translation of the sliding block 22 is allowed to be converted into the rotation of the connection member 131. In this way, a transmission manner between the crank handle member 30 and the connection member 131 is an alternating conversion of rotation and translation. In this way, a transmission space can be reduced through the conversion of the movement manner, and the
10 transmission effect can also be achieved.

[0062] Referring to FIG. 3 and FIG. 6, the first linkage portion 212 has a first waist hole 24. The sliding block 22 has a guide post 221. The guide post 221 is disposed in and penetrates the first waist hole 24. The sliding block 22 has a second waist hole 25. The connection member 131 is disposed in and penetrates the second waist hole 25.

15 [0063] The pot lid assembly 100 may be configured to, by driving the guide post 221 to move in the first waist hole 24 through the first transmission member 21 during the rotation of the crank handle member 30 relative to the lid body 10, enable the sliding block 22 to drive, through a hole wall of the second waist hole 25, the connection member 131 and the bottom lid 13 to rotate around the rotation center of the bottom lid 13 relative to the lid body 10.

20 [0064] In this way, structure limit can be avoided.

[0065] In an exemplary embodiment of the present disclosure, in FIG. 3 and FIG. 6, the first waist hole 24 may have a straight edge. The guide post 221 may move relative to a side wall of the first waist hole 24 in a straight edge direction of the first waist hole 24, to adapt to a movement component of the guide post 221 when the guide post 221 is close to and away
25 from a first linkage member, which can prevent the first linkage portion 212 and the sliding block 22 from being limited to each other due to different movement manners. A length direction of the straight edge of the first waist hole 24 may correspond to an extending direction of the first linkage portion 212 at the first movable portion 211.

[0066] The second waist hole 25 may also have a straight edge. A length direction of the
30 straight edge of the second waist hole 25 may be perpendicular to a translation direction of the

sliding block 22. In this way, a movement component in a movement direction perpendicular to the sliding block 22 generated when the connection member 131 rotates relative to the rotation center of the bottom lid 13 can be adapted, and mutual limiting of the sliding block 22 and the connection member 131 due to different movement manners can be avoided.

5 [0067] In FIG. 6, the extending direction of the first linkage portion 212 at the first movable portion 211 may be represented as a C1 direction, and the length direction of the straight edge of the first waist hole 24 may be represented as a C2 direction. The C1 direction may be parallel to the C2 direction, or a small acute angle may be formed between the C1 direction and the C2 direction. In this way, the extending direction of the first linkage portion
10 212 is substantially the same as the length direction of the straight edge of the first waist hole 24.

[0068] In FIG. 6, the length direction of the straight edge of the second waist hole 25 may be represented as a C3 direction. The B2 direction may be perpendicular to the C3 direction. In this way, a length direction of an arc formed by the movement of connection member 131
15 is basically the same as that of the sliding block 22.

[0069] The connection member 131 may move in the second waist hole 25 relative to the straight edge of the second waist hole 25. In this way, a movement component of the connection member 131 in the C3 direction is not affected by the sliding block 22, and the connection member 131 can be further enabled to rotate around the central axis L.

20 [0070] Referring to FIG. 3 and FIG. 6, the first linkage portion 212 has a first limiting hole 213. The lid body 10 has a limiting post 101. The limiting post 101 is disposed in and penetrates the first limiting hole 213. When the sliding block 22 is located at a first position, the limiting post 101 abuts against a side wall of a side of the first limiting hole 213, and the pot lid assembly 100 is in the first locking state. When the sliding block 22 is located at a
25 second position, the limiting post 101 abuts against a side wall of another side of the first limiting hole 213, and the pot lid assembly 100 is in the first unlocking state.

[0071] In this way, the occurrence of structural breakage due to stress concentration can be avoided.

[0072] In an exemplary embodiment of the present disclosure, in FIG. 3 and FIG. 6, a first
30 position may be a limit position where the sliding block 22 can reach in the B3 direction, and

a second position may be a limit position where the sliding block 22 can reach in the B2 direction. When the sliding block 22 is at the first position, the bottom lid 13 may rotate back to an angle of 0, enabling the pot lid assembly 100 to be in the first locking state. When the sliding block 22 is at the second position, the bottom lid 13 may be rotated to a maximum angle, enabling the pot lid assembly 100 to be in the first unlocking state.

[0073] In FIG. 6, when the sliding block 22 is at the first position, the guide post 221 may abut against a side wall of the first waist hole 24 close to a first movable member, and the limiting post 101 may abut against a side wall of a side of the first limiting hole 213 in the B2 direction, enabling the limiting post 101 and the guide post 221 to jointly abut against a first linkage member. When the sliding block 22 is at the second position, the guide post 221 may abut against a side wall of a side of the first waist hole 24 away from the first movable member, and the limiting post 101 may abut against a side wall of a side of the first limiting hole 213 in the B3 direction. In this way, the limiting post 101 and the guide post 221 may jointly abut against the first linkage member.

[0074] Based on the above, through the arrangement of jointly abutting against the first linkage member, an impact force generated between the first linkage member and the sliding block 22 can be partially borne by the limiting post 101 during the state switching of the pot lid assembly 100, which reduces an impact force on the guide post 221, and further prevents the guide post 221 from being broken due to the occurrence of stress concentration.

[0075] Moreover, the arrangement of the limiting post 101 and the first limiting hole 213 may further limit the rotation of the first linkage member. In this way, stability of the first linkage member during its rotation can be improved.

[0076] Referring to FIG. 3, the transmission assembly 20 may include a second transmission member 26. The second transmission member 26 may include a second movable portion 261 and a second linkage portion 262. The second movable portion 261 may be connected to the crank handle member 30. The second linkage portion 262 may be connected to the second movable portion 261.

[0077] The pot lid assembly 100 may include a lid opening member 41. The lid opening member 41 may be movably connected to the lid body 10.

[0078] The pot lid assembly 100 may have a second locking state and a second unlocking

state. The pot lid assembly 100 may be configured to be switchable between the second locking state and the second unlocking state by driving the second movable portion 261 to drive the second linkage portion 262 to move during the rotation of the crank handle member 30 relative to the lid body 10 to enable the second linkage portion 262 to drive the lid opening member 41 to move and the second linkage portion 262 to be disengaged from the lid opening member 41.

[0079] In this way, the functions of locking and unlocking the pot lid assembly 100 can be further achieved.

[0080] In FIG. 3, the lid opening member 41 may have a snap structure. In an exemplary embodiment of the present disclosure, the lid opening member 41 may rotate relatively at the lid body 10, and a snap structure of the lid opening member 41 may be located at an end of the lid opening member 41. During rotation of the lid opening member 41, the snap structure of the lid opening member 41 can be enabled to move relatively at the lid body 10, enabling the pot lid assembly 100 to be in a snap connection with other structures (such as the pot body 201 of the pressure cooker 200) through the lid opening member 41.

[0081] The second transmission member 26 is driven by the crank handle member 30 to move, enabling the second linkage portion 262 to rotate relative to the second movable portion 261. When the second linkage portion 262 and the lid opening member 41 are disengaged from each other, the second linkage portion 262 may be enabled to be close to and abut against the lid opening member 41. When the second linkage portion 262 and the lid opening member 41 are in contact with each other, the second linkage portion 262 may be enabled to be disengaged from the lid opening member 41.

[0082] Based on the above, the pot lid assembly 100 can be applied to the pressure cooker 200. The pot lid assembly 100 may move through the lid opening member 41. In this way, the pot lid assembly 100 can be locked by the snap structure at the pressure cooker 200, and the snap structure can be allowed to move for unlocking.

[0083] When the pot lid assembly 100 is in the first locking state or the second locking state, a rotation angle of switching the pot lid assembly 100 from the first locking state to the first unlocking state during the rotation of the crank handle member 30 relative to the lid body 10 is a first angle, and a rotation angle of switching the pot lid assembly 100 from the second

locking state to the second unlocking state during the rotation of the crank handle member 30 relative to the lid body 10 is a second angle. The first angle is smaller than or equal to the second angle.

[0084] In this way, the functions of locking and unlocking the pot lid assembly 100 at different degrees may be implemented.

[0085] In FIG. 3, a structure of the second linkage portion 262 may partially extend from the first movable portion 211 in the direction away from the first movable portion 211. Moreover, a part of the second linkage portion 262 extending out of the first movable portion 211 and a part of the first linkage portion 212 extending out may be located at different orientations of the first movable portion 211, respectively. In response to the rotation of the first movable portion 211, the second linkage portion 262 may be driven to rotate accordingly.

[0086] The part of the second linkage portion 262 that extends out may abut against the lid opening member 41 during its rotation, enabling the lid opening member 41 to move. The structure of the lid opening member 41 may partially extend out from the inner lid 12. In response to a movement of the lid opening member 41 when being abutted against, the lid opening member 41 may be retracted into an interior of the inner lid 12.

[0087] The crank handle member 30 may have an initial posture. The crank handle member 30 may be in an initial posture when the pot lid assembly 100 is in the first locking state or the second locking state. The crank handle member 30 can rotate in the initial posture. In this way, the posture of the crank handle member 30 can be changed.

[0088] During the rotation of the crank handle member 30, as the rotation angle of the crank handle member 30 increases, the bottom lid 13 rotates correspondingly. In this way, the pot lid assembly 100 first switches from the first locking state to the first unlocking state, and then the lid opening member 41 is driven by a second linkage member to move, enabling the pot lid assembly 100 to be re-switched from the second locking state to the second unlocking state. The state switching caused by the rotation of the bottom lid 13 and the state switching caused by the movement of the lid opening member 41 may be independent of each other.

[0089] Based on the above, the crank handle member 30 can rotate at the first angle in the initial posture, enabling the pot lid assembly 100 to be switched from the first locking state to the first unlocking state, and the crank handle member 30 can rotate at the second angle in the

initial posture, enabling the pot lid assembly 100 to be switched from the second locking state to the second unlocking state.

[0090] When the pot lid assembly 100 is applied to the pressure cooker 200, the rotation of the bottom lid 13 can facilitate performing pressure relief on the pressure cooker 200. After the pressure cooker 200 completes pressure relief, the movement of lid opening member 41 can enable the pot lid assembly 100 to be unlocked at the pressure cooker 200 to open the lid of the pot lid assembly 100.

[0091] The first angle is smaller than the second angle. In this way, the pot lid assembly 100 is first unlocked through the bottom lid 13, and then unlocked through the lid opening member 41. The first angle is equal to the second angle. In this way, the unlocking of the bottom lid 13 and the unlocking of the lid opening member 41 can be performed synchronously.

[0092] In some cases, the first angle may be greater than or equal to 20 degrees, and may be smaller than or equal to 60 degrees. The second angle may be greater than or equal to 20 degrees, and may be smaller than or equal to 60 degrees. A maximum rotation angle of the crank handle member 30 may be smaller than or equal to 60 degrees.

[0093] Referring to FIG. 3 and FIG. 5, the first movable portion 211 has a second limiting hole 214. The second movable portion 261 has a transmission post 263. The transmission post 263 is disposed in and penetrates the second limiting hole 214. The second transmission member 26 is connected to the crank handle member 30 through the transmission post 263. The transmission assembly 20 is configured to, by driving a rotation of the second transmission member 26 by means of the crank handle member 30 and allowing the transmission post 263 to move in the second limiting hole 214 and abut against a side wall of the second limiting hole 214 during the rotation of the second transmission member 26, enable the first movable portion 211 to be driven to rotate.

[0094] In this way, synchronous driving of the first transmission member 21 and the second transmission member 26 can be implemented.

[0095] In FIG. 5, the first movable portion 211 may have two second limiting holes 214, and the second movable portion 261 may have two transmission posts 263. The two second limiting holes 214 may be spaced apart from each other at the first movable portion 211 in a

rotation direction of the first movable portion 211. The two transmission posts 263 may be spaced apart from each other at the second movable portion 261 in a rotation direction of the second movable portion 261.

[0096] The second limiting hole 214 may be configured as an arc-shaped waist hole. The transmission post 263 disposed in and penetrating the second limiting hole 214 may move in an arc length direction of the arc-shaped waist hole in the second limiting hole 214. One end of the transmission post 263 may be fixedly connected to the second movable portion 261, and another end of the transmission post 263 may be fixedly connected to the crank handle member 30.

[0097] During the rotation of the crank handle member 30, the transmission post 263 may be driven by the crank handle member 30 to rotate. The rotation shaft of the crank handle member 30 and the rotation shaft of the second movable member may coincide with or be parallel to each other. In this way, the second movable member can be driven to rotate. During the rotation of the second movable member, the transmission post 263 abuts against, in the second limiting hole 214, a side wall of the second limiting hole 214 in the arc length direction. The side wall of the second limiting hole 214 may be driven to move under the action of force. In this way, the first movable portion 211 having the second limiting hole 214 can be further allowed to be driven to rotate, enabling the first movable portion 211 and the second movable portion 261 to rotate synchronously.

[0098] In addition, the rotation of the crank handle member 30 may be the rotation of the crank handle member 30 relative to the lid body 10.

[0099] Referring to FIG. 3, the transmission assembly 20 may include an elastic member 27. The elastic member 27 may be connected to the second movable portion 261. The elastic member 27 may be configured to apply an elastic force to the second movable portion 261, enabling the second linkage portion 262 to be driven by the second movable portion 261 to move away from the lid opening member 41.

[0100] In this way, when the crank handle member 30 is not operated, the pot lid assembly 100 can still maintain the second locking state.

[0101] In FIG. 3, in response to the first movable portion 211 being driven by the crank handle member 30 to rotate, the pot lid assembly 100 may be switched from the first locking

state to the first unlocking state, and switched from the second locking state to the second unlocking state. At the same time, the elastic member 27 may be compressed by the rotation of the crank handle member 30 during the state switching of the elastic member 27 to accumulate the elastic force.

5 **[0102]** In response to the user releasing the crank handle member 30, the elastic member 27 may release the elastic force and directly apply an elastic force to the second movable portion 261. Since the second limiting hole 214 has a large enough space for the movement of the transmission post 263 in the second limiting hole 214, the second movable portion 261 can be driven by the elastic force to rotate reversely relative to a rotation direction driven by
10 the crank handle member 30, and the transmission post 263 is not limited by the second limiting hole 214. In this way, the second linkage can be disengaged from the lid opening member 41, enabling the pot lid assembly 100 to be switched from the second unlocking state to the second locking state.

15 **[0103]** Based on the above, even if the pot lid assembly 100 cannot be locked through the bottom lid 13, the locking function of the lid opening member 41 can still take effect. When the pot lid assembly 100 being applied to the pressure cooker 200 and the user closes the pot lid assembly 100, the pot lid assembly 100 can be automatically switched to the second locking state through the elastic member 27 to be locked at the pressure cooker 200, and the user can operate the crank handle member 30 to enable the first linkage portion 212 to start
20 back-rotation. In this way, the bottom lid 13 can be locked tightly at the pressure cooker 200, facilitating user operation.

25 **[0104]** In addition, in FIG. 4, the radius of the bottom lid 13 may be a radius of a maximum circle formed by a projection of the bottom lid 13 in an axial direction of the central axis or a radius of a circumscribed circle of the projection of the bottom lid 13 in the axial direction of the central axis.

30 **[0105]** Referring to FIG. 7, the crank handle member 30 may have a hand-held part for holding. The outer lid 11 may be provided with a bubble breaker 42. The bubble breaker 42 and the crank handle member 30 may be spaced apart from each other.

30 **[0106]** The pot lid assembly 100 may be configured such that a minimum distance between the hand-held part of the crank handle member 30 and the bubble breaker 42 may be

greater than a safety interval value. When the crank handle member 30 is at a maximum rotation angle, a minimum distance may occur between the hand-held part and the bubble breaker 42. In this way, users can be prevented from pinching or burning themselves when they operate the crank handle member 30.

5 **[0107]** In FIG. 7, when the pot lid assembly 100 is in the first locking state, an extending axis of the hand-held part of the crank handle member 30 may be represented as M. When the pot lid assembly 100 is in the first unlocking state, the extending axis of the hand-held part of the crank handle member 30 may be represented as X. The minimum distance between the hand-held part of the crank handle member 30 and the bubble breaker 42 may be represented
10 as S. An axial direction of the extending axis changes correspondingly when the crank handle member 30 is operated by the user to rotate, and the minimum distance S may also change accordingly. FIG. 8 shows a rotation angle of the crank handle member when the pot lid assembly is opened through the crank handle member in the related art.

[0108] In some cases, the bubble breaker 42 may be used for cooking of the pressure
15 cooker 200 and may play a bubble-breaking effect when the cooking of the pressure cooker 200 is performed. In these processes, the bubble breaker 42 may accumulate a large amount of heat accordingly. Generally, the bubble breaker 42 is disposed at a top of the pot lid assembly 100. In this way, a gas exhaust effect can be achieved, and the bubble breaker 42 and the crank handle member 30 are allowed to be located at a same side surface of the pot lid
20 assembly 100. For a pressure cooker 200 with a small size, due to the corresponding cooking requirements, the bubble breaker 42 is disposed at a position, close to the center, of the top of the pot lid assembly 100, to be closer to the crank handle member 30.

[0109] With reference to FIG. 7 and FIG. 8, it can be determined that the rotation of the crank handle member 30 enables the formation of an angle between an axis M and an axis X.
25 An angle formed in the present disclosure is smaller than an angle formed in the related art, so the minimum distance between the hand-held part and the bubble breaker 42 in the present disclosure is also greater than the minimum distance between the hand-held part and the bubble breaker in the related art.

[0110] Based on the above, when the crank handle member 30 is rotated to the maximum
30 rotation angle, the minimum distance S can be kept to be greater than the safety interval value.

In this way, when the user operates the crank handle member 30, a case where the hand is easy to make contact with the bubble breaker 42 to be pinched or scald is avoided.

[0111] The safety interval value may be determined according to a size of a holding space required by the user when operating the crank handle member 30, i.e., an object located
5 outside the safety interval value does not touch the user's hand holding the crank handle member 30. In this way, it can be ensured that the users do not pinch hands or scald themselves.

[0112] Referring to FIG. 2, the pot lid assembly 100 may include a plurality of reinforcing ribs. The plurality of reinforcing ribs may be disposed at the top of the inner lid 12 and
10 disposed around the transmission assembly 20. In this way, a structural strength can be improved, and the transmission assembly 20 can be protected.

[0113] Referring to FIG. 1, a pressure cooker 200 according to an implementation of the present disclosure may include a pot body 201 and a pot lid assembly 100 according to any one of the above implementations. The pot lid assembly 100 is rotatably connected to the pot
15 body 201.

[0114] With the pressure cooker 200 described above, the distance between the center of the connection member 131 and the rotation center of the bottom lid 13 is smaller than or equal to two thirds of the radius of the bottom lid 13, which can correspondingly reduce the required rotation angle of the crank handle member 30 during the state switching of the pot lid
20 assembly 100. In this way, the crank handle member 30 can rotate a small angle to achieve the operation on the pot lid assembly 100 (e.g., opening the lid). Therefore, the operation space is reduced, and the facilitation of user operation is beneficial.

[0115] Referring to FIG. 1, the pressure cooker 200 includes an inner pot (not shown), and the inner pot is disposed in the pot body 201. In a first locking state of the pot lid
25 assembly 100, the bottom lid 13 is in a locking connection with the inner pot. In a first unlocking state of the pot lid assembly 100, the bottom lid 13 and the inner pot are unlocked.

[0116] In this way, the functions of locking and unlocking the pot lid assembly 100 at the pressure cooker 200 can be achieved.

[0117] In an exemplary embodiment of the present disclosure, referring to FIG. 2, the
30 bottom lid 13 may be provided with a connection portion 132. The connection portion 132

may be located at a bottom of the bottom lid 13. When the pot lid assembly 100 is switched from the first locking state to the first unlocking state, the connection portion 132 is driven by the bottom lid 13 to rotate around the central axis L. In this way, the connection portion 132 moves relative to the inner pot, and the connection portion 132 moves to be fixedly connected to the inner pot for locking.

[0118] When the pot lid assembly 100 is switched from the first unlocking state to the first locking state, the connection portion 132 is driven by the bottom lid 13 to rotate around the central axis L. In this way, the connection portion 132 moves relative to the inner pot, and the connection portion 132 moves to be disengaged from the inner pot for unlocking.

[0119] In the description of this specification, descriptions with reference to the terms “an implementation”, “some implementations”, “illustrative implementations”, “examples”, “specific examples”, or “some examples” etc., mean that specific features, structure, materials or characteristics described in conjunction with the implementation or example are included in at least one implementation or example of the present disclosure. In this specification, the schematic representations of the above terms do not necessarily refer to the same implementation or example. Moreover, the described specific features, structures, materials or characteristics may be combined in any one or more implementations or examples in a suitable manner.

[0120] Although implementations of the present disclosure have been illustrated and described, it is conceivable for those of ordinary skill in the art that various changes, combinations, modifications, replacements, and variations can be made to these implementations without departing from the principles and spirit of the present disclosure. The scope of the present disclosure shall be defined by the claims as appended and their equivalent.

CLAIMS

What is claimed is:

1. A pot lid assembly, comprising:

a lid body;

5 a bottom lid rotatably connected to the lid body, the bottom lid having a rotation center and being provided with a connection member;

a crank handle member rotatably connected to the lid body; and

a transmission assembly being in a transmission connection with the crank handle member and the connection member, wherein:

10 the pot lid assembly has a first locking state and a first unlocking state and is configured to be switchable between the first locking state and the first unlocking state by driving the bottom lid to rotate relative to the lid body through the transmission assembly during a rotation of the crank handle relative to the lid body,

15 a rotation angle of the crank handle member is in a positive correlation with an arc length through which the connection member passes during the rotation of the bottom lid, and

a distance between a center of the connection member and the rotation center of the bottom lid is smaller than or equal to two thirds of a radius of the bottom lid.

2. The pot lid assembly according to claim 1, wherein the transmission assembly comprises:

20 a first transmission member comprising a first movable portion in a transmission connection with the crank handle member and a first linkage portion connected to the first movable portion; and

a sliding block connected to each of the first linkage portion and the connection member.

3. The pot lid assembly according to claim 2, wherein:

25 the first linkage portion has a first waist hole, the sliding block having a guide post disposed in and penetrating the first waist hole;

the sliding block has a second waist hole, the connection member being disposed in and penetrating the second waist hole; and

the pot lid assembly is configured to, by driving the guide post to move in the first waist hole through the first transmission member during the rotation of the crank handle member relative to the lid body, enable the sliding block to drive, through a hole wall of the second waist hole, the connection member and the bottom lid to rotate around the rotation center of the bottom lid relative to the lid body.

4. The pot lid assembly according to claim 2, wherein the first linkage portion has a first limiting hole, the lid body having a limiting post disposed in and penetrating the first limiting hole, wherein:

when the sliding block is located at a first position, the limiting post abuts against a side wall of a side of the first limiting hole, and the pot lid assembly is in the first locking state; and

when the sliding block is located at a second position, the limiting post abuts against a side wall of another side of the first limiting hole, and the pot lid assembly is in the first unlocking state.

5. The pot lid assembly according to claim 2, wherein:

the transmission assembly further comprises a second transmission member, the second transmission member comprising a second movable portion connected to the crank handle member and a second linkage portion connected to the second movable portion;

the pot lid assembly includes a lid opening member movably connected to the lid body; and

the pot lid assembly has a second locking state and a second unlocking state, the pot lid assembly being configured to be switchable between the second locking state and the second unlocking state by driving the second movable portion to drive the second linkage portion to move during the rotation of the crank handle member relative to the lid body to enable the second linkage portion to drive the lid opening member to move and the second linkage portion to be disengaged from the lid opening member.

6. The pot lid assembly according to claim 5, wherein when the pot lid assembly is in the first locking state or the second locking state:

a rotation angle of switching the pot lid assembly from the first locking state to the first unlocking state during the rotation of the crank handle member relative to the lid body is a

first angle; and

a rotation angle of switching the pot lid assembly from the second locking state to the second unlocking state during the rotation of the crank handle member relative to the lid body is a second angle, the first angle being smaller than or equal to the second angle.

5 7. The pot lid assembly according to claim 5, wherein:

the first movable portion has a second limiting hole, the second movable portion having a transmission post disposed in and penetrating the second limiting hole, and the second transmission member being connected to the crank handle member through the transmission post; and

10 the transmission assembly is configured to, by driving a rotation of the second transmission member by means of the crank handle member and allowing the transmission post to move in the second limiting hole and abut against a side wall of the second limiting hole during the rotation of the second transmission member, enable the first movable portion to be driven to rotate.

15 8. The pot lid assembly according to claim 7, wherein the transmission assembly further comprises an elastic member connected to the second movable portion, the elastic member being configured to apply an elastic force to the second movable portion, enabling the second linkage portion to be driven by the second movable portion to move away from the lid opening member.

20 9. A pressure cooker, comprising:

a pot body; and

the pot lid assembly according to any one of claims 1 to 8, the pot lid assembly being rotatably connected to the pot body.

25 10. The pressure cooker according to claim 9, further comprising an inner pot disposed in the pot body, wherein:

in a first locking state of the pot lid assembly, the bottom lid is in a locking connection with the inner pot; and

in a first unlocking state of the pot lid assembly, the bottom lid and the inner pot are unlocked.

30